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and the results have just been published by COLLINS.[26] It is distinct from all hitherto known types in its erect and one-ranked leaf blades, in the development of its "silks" while still within the leaf sheath, and in its peculiar endosperm. The first two of these unique characters insure pollination and prevent the drying-out of the silks, the pollen being blown against the erect leaf blades and accumulating at their bases, and the silks pushing into these accumulations before they are exposed to the air. The endosperm is neither starchy nor horny, resembling the latter in location and hardness, but having the texture and optical properties of very hard wax, and hence the suggested name is "waxy endosperm." The xenia characters in hybrids showed that colored aleurone is dominant to transparent, yellow endosperm to white, and horny endosperm to waxy. This Chinese corn also raises the question as to whether maize was known in China before the discovery of America. That it is of American origin does not seem to be open to doubt, but Chinese literature of the sixteenth century refers to its introduction and widespread use, and this specialized type may have developed in China.—J. M. C.

**Leaf structure of strand plants.**—HARSHBERGER[27] has studied the leaves of twenty plants from the sandy shores of New Jersey and eleven from its salt marshes. All exhibit xerophytic structures and almost without exception have thickly cutinized epidermis. Four of the strand plants and six of the salt marsh species are succulents, while nine from the strand and three from the salt marsh have epidermal hairs. The drawings will form convenient plates of reference for students interested in these plants. It is to be regretted that they are not on a larger scale and that more attention has not been given to the differentiation of chlorophyll-bearing and mechanical tissues. The same criticism will apply to a previous paper by the same author[28] on the sand dune plants of Bermuda, which records observations for the leaves of seventeen plants. The author is confident that the various xerophytic leaf structures have been produced largely in response to intense illumination, exposure to strong winds, and in a few instances to the action of salt spray blown inland. He is inclined to overemphasize the influence of light, and says "chlorenchyma is converted into two kinds of tissues, palisade and spongy parenchyma, as a direct result of the unequal illumination of the leaf surfaces."—GEO. D. FULLER.

**Ferments of fungi.**—PRINGSHEIM and ZEMPTEN[29] have applied the Buchner method of extracting enzymes from yeast cells to the extraction of sugar-splitting ferments of various fungi. The results constitute a number of detached facts not readily summed up in a review; however, some of the main points may be noted. The press-extract of some of the fungi was found to be incapable of splitting any of the sugars used, while the residue was found capable of active fermentation, showing that the ferments in these cases are incapable of being separated from the rest of the cell by the Buchner process. In the case of *Aspergillus Wentii*, both the extract and the residue fermented cane sugar, milk sugar, maltose, cellobiose, and raffinose. It is of special interest to note that some of the fungi were able to utilize as food disaccharides, which neither the expressed juice nor the residue were able to ferment. These sugars were probably assimilated directly. The behavior of raffinose varied with different fungi. With *Aspergillus Wentii* this sugar was split into *d*-glucose, *d*-fructose, and *d*-galactose. In five other cases it was split into *d*-fructose and melibiose, and in three cases into *d*-galactose and cane sugar.—H. HASSELBRING.

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[26] COLLINS, G. N., A new type of Indian corn from China. Bull. 161, Bureau Pl. Ind., Depart. Agric. pp. 30. *pls. 2.* 1909.

[27] HARSHBERGER, JOHN W., The comparative leaf structure of the strand plants of New Jersey. Proc. Amer. Phil. Soc. **48**: 72–89. *pls. 2–5.* 1909.

[28] ———, The comparative leaf structure of the sand dune plants of Bermuda. Proc. Amer. Phil. Soc. **47**: 97–110. *pls. 1–3.* 1908.

[29] PRINGSHEIM, H., AND ZEMPTEN, G., Studien über die Polysaccharide spaltenden Fermente in Pilzpresssäften. HOPPE-SEYLER'S Zeitschr. Physiol. Chemie **62**: 367–385. 1909.

**The ring and cell wall of Oedogonium.**—According to VAN WISSELINGH,[30] the cell wall of Oedogonium consists of two distinct layers; the outer containing little cellulose, but a large proportion of a characteristic membrane-forming material whose reactions are described, but whose chemical composition was not determined; while the inner wall is rich in cellulose and has a lamellate structure. The outer layer is lacking in the basal cell. The ring is a portion of the cell wall which arises by the intussusception of various membrane-forming materials, among which cellulose is prominent, especially in the centripetal portion. The rupture of the old wall and the stretching of the ring to form a new wall is about as usually described. The inner cellulose layer of the wall arises by apposition. The chemical tests and the observations are satisfactory so far as they go, but the subject is a much described and much discussed one, and it would seem that an investigator acquainted with technic, as VAN WISSELINGH is, could have advanced our knowledge much farther by adding a study of carefully stained sections.—CHARLES J. CHAMBERLAIN.

**Anatomy of Saxegothaea.**—TISON[31] has investigated the vascular anatomy of *Saxegothaea conspicua*, especially that of the ovulate strobilus. This genus has received much attention recently (NORÉN, STILES, THOMSON), and investigators have been impressed by its suggestion of araucarian affinities. TISON concludes, from the behavior and distribution of the two systems of bundles found in the megasporophyll (one serving the sporophyll and the other the ovule), that Saxeogothaea is more nearly related to the araucarians than to the podocarps, but that through Microcachrys it is so definitely connected with the latter that the araucarians, Saxegothaea, and the podocarps should constitute a single group,

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[30] WISSELINGH, C. VAN, Ueber den Ring und die Zellwand bei Oedogonium. Beih. Bot. Centralbl. **23**:157–190. *pls. 13–16.* 1908.

[31] TISON, A., Sur le *Saxegothaea* Lndl. Mém. Soc. Linn. Normandie **23**:139–160. *pls. 9, 10.* 1909.